

SEQUENCE LISTING

<110> SANDIG, Volker  
WINKLER, Karsten  
MARX, Uwe  
WERMELINGER, Tobias

<120> High Yield Heterologous Expression Cell Lines for  
Expression of Gene Products with Human Glycosylation  
Pattern

<130> 04156.0012U1

<140> 10/530,224

<141> 2005-04-04

<150> PCT/EP2003/011027

<151> 2003-10-06

<150> EP 02022194

<151> 2002-10-04

<160> 22

<170> PatentIn Ver. 2.1

<210> 1

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer VHpromF

<400> 1

atactagtcg gccgcaggca catccacagt cac

33

<210> 2

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer VHpromR

<400> 2

tcccgggtat cgatggagct ctcaggggat tc

32

<210> 3

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer CAIntV

<400> 3

catcgatccg ctactactac tacatgg

27

<210> 4  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer CAInTR

<400> 4  
cggccacgct gctcgtat

18

<210> 5  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer  
CAMitter

<400> 5  
agctcacctg gtgcaact

18

<210> 6  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer  
CAMitteF

<400> 6  
gacctaagct gacctagac

19

<210> 7  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer V5

<400> 7  
tccctccaaa agctgtag

18

<210> 8  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer V6

<400> 8  
atggcggttaa tggtggac 18

<210> 9  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer V7

<400> 9  
cacaagaatc cgcacagg 18

<210> 10  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer  
EBVtestR

<400> 10  
cctgatattg caggtagg 18

<210> 11  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer  
EBVtestF

<400> 11  
taccgacgaa ggaacttg 18

<210> 12  
<211> 377  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic construct

<400> 12  
cagctggtgc agtctggggc tgaggtgaag aagcctgggg cctcagtga ggtctcctgc 60  
aaggtttctg gatacacctt caccggctcc tatatgcact gggcgcgaca ggcccttgga 120  
caaggccttg agtggatggg acggatcaat cctaacagtg gtggcacaaa ctatgcacag 180  
aaatttcagg gcagggtcac catgaccagg gacacgtcca tcagcacagc ctacatggag 240  
ctgagcaggc tgagatctga cgacacggcc gtgtattact gtgcgagaga caagctttcc 300  
cggtcagaag taccagctgg ccgctactac tactacatgg acgtctgggg caaagggacc 360  
acggtcaccg tctcctc 377

<210> 13  
<211> 18

<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer V81

<400> 13

agcttcggct caacacag

18

<210> 14

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer V83

<400> 14

gccttacctg cagagatg

18

<210> 15

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer V89

<400> 15

agtatacccc agaactctgc tt

22

<210> 16

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer V90

<400> 16

ggccgctgcg gccggaagat gaggctgact

30

<210> 17

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer V91

<400> 17

agcggccgct tgcaggacaa tatga

25

<210> 18

<211> 18

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer V94

<400> 18  
ttgcgtgaca ggctcagt 18

<210> 19  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer V115

<400> 19  
atcacacggc acttctcg 18

<210> 20  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer V116

<400> 20  
gagataticgg cttctggagg acact 25

<210> 21  
<211> 14000  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Proposed  
sequence of the arranged light chain locus

<400> 21  
ctctccagca aggggataag agaggcctgg gaggaacctg ctcagtctgg gcctaaggaa 60  
gcagcactgg tgggtgcctca gccatggcct ggaccgttct cctcctcggc ctcctctctc 120  
actgcacagg tgatcccccc aggggtctcac caacctgccc agcccaaggg ttctgggtcc 180  
agcgtgtcct tgattctgag ctcaggaggg cccttctctg ggtgggcagg atgctcatga 240  
ccctgctgca ggggtgggagg ctgggtggggc tgaactcccc ccaaactgtg ctcaaaggct 300  
tgtgagagcc tgaggggactg cacctgccag gagagagtag tgagttttca gttcaaagtc 360  
tccatacaaac aggaaagtca tgggcccactg gggctggggc tgattgcagg ggataccctg 420  
agggttcaca gactctcttg agcttgtctg ggacagcagg gcaagggaatt tcataagaag 480  
catctttcac ctgcaagcca acctctctct tatttattta tttatttatt tatttattta 540  
tttatttatt tttatctttg caggctctgt gacctcctat gtgctgactc agccaccctc 600  
ggtgtcagtg gccccaggac agacggccag gattacctgt ggggggaaaca acattggaag 660  
taaaagtgtg cactgggtacc agcagaagcc aggccaggcc cctgtgctgg tcgtctatga 720  
tgatagcgac cggccctcag ggatccctga gcgattctct ggctccaact ctgggaacac 780  
ggccaccctg accatcagca gggtcgaagc cggggatgag gccgactatt actgtcaggt 840  
gtgggatagt agtagtgatc atcccacggt gacacaggca gatgaggaag tgagacaaaa 900  
acaccctccc agcctcggtc accctcttgc tccagccccg ggaagcctgt tgataaagcc 960  
atgagtgaat ctggcccagt tcacctggat ctgagccttt cagggttggcc ttccctccag 1020

ccccctccag	gagtcctctac	agaagataca	tcaggcataa	atatggcctg	gaagggccag	1080
aatcatctgg	tgacttgggg	ctgttgtgtg	agttagagaa	tgaaggcttg	ggtggaaaga	1140
cagacagagg	caacctctgt	ccactgtcct	acccctggat	ggtcatatgg	tggggacagg	1200
gcaagtcctt	agaccaactg	tctggatcag	gccccagaac	tactgcccag	ttctgctgag	1260
gtcctggccc	ccaggctgtg	tggcagcctg	tgattcccaa	cagagcaaac	cagaggaatg	1320
gacactgtga	agtctgcccc	gatccccctc	tcaatgtgac	ccacctggca	ctgctgagaa	1380
gcccagcagc	tcagagctgt	gccctcactg	ggaagtgtct	ttggttgcag	aaagcttcct	1440
caagtttgtg	tcccttttca	gaggggttcg	gtttaatcaa	ccaagatctc	aaatccttgc	1500
ctcaatttaa	gatgccactg	aatgaagggc	ctcccagctc	cagagctccc	tgtgtggata	1560
cctgaggcct	caatgtcaac	tccatcacga	gtcagggtct	ccttctgccc	cgtgttgcc	1620
ccccactcc	cttctgaatc	ttctgtgcat	ggacatctct	attgcagagt	tagcttccag	1680
agaaccccat	ctaagatggc	cagctgtccc	caacatgggt	catcaggggc	ctgagtaggc	1740
cactataaac	tgaaaactct	ggtttctgtc	caaatttgca	gagtaaatgt	tgaaatgccc	1800
aatctgatgg	ttccttgaat	ttttatggaa	tgaaaaggga	gcctgacatg	ccaggtgctc	1860
tgggttgagg	gattgttggg	gtcagatctc	cctgcaggaa	agcccggggc	agggggagca	1920
gcctcacccc	tcacaggaac	cacagataca	cccacaaggt	gagctgcagg	atggatgctg	1980
cccactcca	ccctccacat	cctctgtaaa	tgttgctcct	ttctacaact	ccaaccagat	2040
atgtagatgt	ggcgaactac	gtaaaatacg	gatcattcat	cacatcaaaa	cccactgcag	2100
gacaccctgg	tcaacaaaga	acccaatcac	atccccatca	actacatagt	ttccaaattt	2160
tccatctcca	gaaaaataac	aataacaata	tacatgaaaa	tcgatgtaat	ttatctcata	2220
cataatttca	tgttgataac	gtgaaaatga	tagtattttg	ctctactgaa	ataaataaaa	2280
tatatatata	tatctgaatt	tatttgtcct	atcttttcat	atttaatgtg	gtgactagac	2340
actagggggg	cacaggagga	tcgtgtcata	ccactatggg	acagagctcc	tcacaactct	2400
ttcaggtgag	aggtactgtt	gagtaacctg	gtcgaagcat	ccccatctcc	accagaccat	2460
ataagtgtga	accaggaag	aggcactgga	acaatagaga	gaaaaacctg	cttgtgcaga	2520
agacggtgcc	cttgagccct	gctcctgctc	catcctacgg	gtgccacatt	catctcatgg	2580
tgtaatattt	cgtgccctgc	ctgagcttat	gaccgagggg	atatggcagg	tctgactgtg	2640
tggttactgg	tgtctcatga	ggttctggat	gtacaaaagc	cctcgaatat	agaagagggt	2700
gttttcaaaa	ggaaataatt	atctactgca	catgacatag	acttgttgct	aaatcccatg	2760
cgtctacact	aggattctcc	tctgaagcct	tgccttaagc	acaaggtttc	agttcctatg	2820
tccagttcct	ctattatggg	agagtctgct	agtttctctg	gcccataatg	aggacactca	2880
ctccccacc	tgcacctgct	gcagagcctt	tctactcttg	gccccaaaac	actgggtgac	2940
acagttctca	gacctatgat	ttatagtgtc	agtattcagg	cctcaggggt	ccctgatggc	3000
ttctctggct	ccaagtctgg	aaacacagcc	tccatgacca	tctctgggtt	ccaggctgag	3060
gatgaggctg	attattactg	caactcacat	aggagagggt	gcactttcca	ccgtgggtcca	3120
agttcatggg	gaattgagac	ccaaacctgc	cctgggctct	cagcctctct	cttgttctga	3180
agatgcttcc	tcacctgtg	caaggggctt	cctgcagcac	tgccttgaga	atttcccctc	3240
tcccagctcc	tctcctttct	caccaggaag	tccaaaagga	aacctgctct	gtgattttct	3300
atccaggaca	gtgacagctt	cctgatgctt	gtgtgctgtg	gtccctgaat	gtgcaactct	3360
tcctagctct	tcaaattgcag	gcacatagt	agaaaagctg	cctgactggg	gcattcactg	3420
ctgtttttaa	ggatgtcctc	acccaaaatg	catcctcctc	ccaaattgtg	aagaacaatc	3480
tggacagagg	tcattacagg	gagtttcaag	aaactgcatc	ttattcaatt	gtgtccacca	3540
tggctcggta	aagatggccc	tccctggatg	actattcctc	tgcattgtct	tccctgaagca	3600
gtgaccactg	tgagaagatc	tgaacatgtt	tgtgaggtat	taaggacgag	aggaaactgt	3660
tgtttttatt	attcttttgt	ttttgttttt	gaaacaaaact	tttgctttgt	cgccaggctg	3720
gagtgcagtg	gcagaatctt	ggcttactga	aatctcagcc	tcccaggctc	taccaatgct	3780
ccctgcctca	gcctcccga	gagctgggat	aacagggtgac	caccaccatg	cctggctgat	3840
ttttgtatat	ttagtagaga	cgggatttca	ccatgttggc	caggctgggt	ttgaactcct	3900
gatctcaggt	gatgcacca	cctcggcctc	tcaaagggat	gggaatacac	acaggagcca	3960
ctgcatctgg	cagtgttttt	tttatttttg	ctcctcctct	ttgcctcaat	acctcaggtt	4020
gctgagctgg	ggagattttg	cgtgacaggg	ctcagtgtcc	ctcaaaatcc	tcccgtctca	4080
attcgctggg	gccctgtcct	ggaaactccc	caaaagtggg	tgggtgtcct	atagggttggg	4140
agtttccaaa	atggccccc	agggaagagt	taacgtgagt	ccattccttc	ttcctcattg	4200
acatccagca	tttgtaattt	ccatgggtgt	caatactttt	gtagctgaaa	tctttcttaa	4260
tctactaaag	gtgagaatga	atttaataaa	tattcagaca	ttagttgcat	ccaatattta	4320
aattttatga	gtcaattggg	agacatagcc	attattatat	ataatttagg	cttcataaac	4380
tttgattaaa	taggttttat	taaaaaacaa	gtaaccattt	tattatgtgt	ttagactata	4440
tcaacatgtt	gtgtacctga	aatatccaca	agaaaatata	tttcaaaaac	caaattgtat	4500
ttattgtcta	ttgttgcata	aaaattgtct	cctaattatt	agcatggtaa	gagaacacgt	4560
gtttgtgac	ttgtcacttc	gggtgcactg	gaaattgagag	cagcttagtt	ttgtgggtct	4620
ggttctgggt	tgggtcatgaa	gttgacagcca	agctgtcagg	ccaggctgca	ttcagaggcc	4680

agagcaggtg	gccaggccca	gcctgagggg	cttccactgt	ccctaacctg	tttgtctgat	4740
gtggaaaatc	tcagaggaaa	aggagagagt	gaagtgtgag	gcacctgtcc	cagtccccct	4800
tgtcaaaggc	catcccatac	ctgcaccatt	tcttattctt	tcttggggcg	tcataggcat	4860
agagcactgc	ccattcattc	taacgctgta	gagtattctg	tagtaggatt	ttagccatgc	4920
agcctctaag	ggttatcacc	atgattttga	tcttacaaat	cacactgcag	caagcatccc	4980
tgtgcagact	cctttgagtt	catgtgtgca	tatcaccata	ggataaattt	ccagaagtgg	5040
aattgctggg	tcaaaaggat	gtgcattttt	aactttttatc	cattgttttc	atattccccct	5100
ccagttctac	cagttttacaa	taccagccct	aaatattgat	tgggaattcat	tgggtgaaagt	5160
gcaagtttgt	gccaacctat	cagatatata	aagttatctt	gttacacatt	tattttttgat	5220
ttctcctatt	ttgcttgagg	ttgagcattt	actcaaatat	ttcagtgctc	attatgtttt	5280
aggatttggg	aaaccgtttc	ttcaatgcct	cggtaagagg	tatttttagtc	tttgccatgc	5340
acaagacaac	gttgggataa	tatgtatggt	ctgatacacc	atctacaacg	taatcattaa	5400
aacatataaa	aaccactatc	agttctgggg	ccattaaaaa	aattgggtggc	aggccaggga	5460
tgtcccacag	gatgtgggtt	aacggctctt	ggtttctagg	gttatttgaa	gtttgaacat	5520
tgcacccgca	tatgttctat	gtggagatct	ccttgtgagg	gacactgtaa	ttcacctcct	5580
ctaggggcct	gaggtctttc	tttggataag	aacctacctg	taccatgtgt	ttgattggat	5640
ccttgtgtctg	ctcaagacag	ccctgtgtca	caagctcatg	actttcatct	tcatccattt	5700
gctctgtttt	gtgagagctt	cagtatatca	ggaatagaga	ttcctccgag	gtgaaaaatt	5760
agaggcagag	ggaggggcaa	atggggcaagg	aagcttgac	caagtcggga	gtgatccagt	5820
gtaggctgag	agaaaaaagg	tcttaaaatc	agccttgtag	ctgaaaccaa	aaacacacaa	5880
gatggttggg	gttctgagca	tcattaacaa	atgataaatg	aagttgaact	tttaaatgta	5940
ttgcaaattt	ttataaagca	agtagatcgt	taaaactcaga	atgcaacaat	ggaataaaga	6000
agagagtttg	agatgttttt	aaaattttat	tattttattt	tttatttttg	agatggagtc	6060
tcactctgtt	gccaggctgg	agtgcagtg	cacaatcgcg	gctcactgca	acatccacct	6120
cccgggttca	agaaattctc	ctgcctcagc	ctcccaagta	gctgggatta	caagctctcg	6180
ccatcatgcc	aggctaattt	ttgtattttt	tgtagagaca	tggtttcaca	atgttgacca	6240
ggatggtgtc	aatctcctga	cctcatgatc	caccctgtctc	ggcctcccaa	agtgtctggga	6300
ttacaggcat	gaactaccgt	gcctggctga	gtttgagatt	ttaaactgtaa	gtcctccaac	6360
taagttgcc	tgacaagaac	agggatgatg	agagtggaaa	tatgttatcc	tgcaaattat	6420
cgtttttatgt	aaaagaatat	tttccctctt	ttaggtaaag	gaagcatctt	ctggagcacc	6480
ttctctctga	ctatcaaagc	accattaagc	cacaaataaa	ctgtaacatg	aagtaggaaa	6540
caactgcctt	tttatataac	cattgagagg	tggctttata	tgcataccaa	aatgttgatg	6600
ctcaatgcta	aaattggatt	tagtaattta	atatgcctac	aagaaattaa	ttttcttttg	6660
attatattat	ttctgtgtac	gatttatctt	agttaacttg	gaaatattct	gctctaaaaa	6720
caactcttgt	tttttgggtt	atattttctg	tatcaactat	agctcttttc	caaagtctgt	6780
cagagatagc	ccatggctac	tgatcacaaa	attcaatttt	atggcattta	aattattcta	6840
tactctaaat	tatttttaaaa	gtgcacagat	gtgaattttt	cacatctgac	tcaaaaatgt	6900
tgctgatgtt	gactcacttt	tttatttcaa	tcttattgaa	gtaggagttt	acttttctgg	6960
aacctggatg	ataacaggag	actggagagg	aaacccccca	aattgttttc	ctttaaaccc	7020
tcaggatgaa	tcatctggga	taatcaccca	cacttgattt	gggtgatata	taaatgagag	7080
ttgggtctta	gagtgtgtgc	tgagttagtt	caggacttgc	gctgttgga	tgagttgaat	7140
gtttttacaa	gtgagaaaga	catgagtttt	ttggagtcca	gaggggtggg	ggttattggc	7200
tgaattaaagt	cccccaaat	gtatgcattg	aagctgtaac	acacaatatg	tgactgaaat	7260
tgtgcatagg	gtctttaaag	aggtgactaa	gtgaaaatga	aaaaattagg	gtggattctt	7320
ctcaaattgg	actgatgtcc	tcctaggaag	aagaaatttg	cacacacaga	aatgaggcac	7380
cagaggtgag	cgtgcagaga	aaagaccagg	tgaggattca	gcaaggaggt	agcaacctgc	7440
aagccaagga	gagagtcctc	aggggaaacc	aaacccacta	ccacctttat	cctgggtttt	7500
ccagcttcag	aactgtgaga	aaatatgttt	ctgccatttc	ggtcactaat	tctttcctat	7560
cttcttgtgg	gagctctagc	aaaaacaaga	gggaccccaa	agaccttgga	tgagggagaa	7620
ggaggagatg	gagcagggtg	caggaggcgg	tgacggaagg	ggctggaagg	tcgggctctg	7680
aggtgcatct	cctgggtgga	atcttgactc	cactccctat	tgtctggagg	acttgggaaa	7740
aacatttaac	ctcctaatat	tcactcacta	ataaagatgg	gcttgaagca	caaggctccc	7800
catcatccta	ttctatatta	caaaagtctt	cctgaggtaa	cacttgtaaa	actctcgcta	7860
atgcatctgg	catgtattat	ggactcataa	gtagcccttc	tgagtgatct	agtgatgtgc	7920
agaaaatggc	attcatgctg	tgtgcaccag	ggggcactgt	gaggtttagt	ctgaggcccc	7980
taatgagtc	aagcccctag	taatgctcaa	gggcgaagag	cctgactgtt	gcttcctatg	8040
aggccccctc	tagtgggtaa	atctgaaaaa	gcactttggc	cttcttctga	tcttgagaaa	8100
ttactcagag	aaggccatca	ggctcagggc	tcagacaaga	accaggacaa	atgttttagg	8160
gaattggagaa	cagatttgca	tccactgtct	accagagcca	cctaacgacg	acacaagaat	8220
aaaggaagta	gatttgcattg	aagagacttc	ccttcctatg	ataagagagg	cctggaggtt	8280
cctccttagc	tgtgggctca	gaagcagagt	tctgggggtg	ctccaccatg	gcctggaccc	8340

ctctctggct	cactctcctc	actcttttgc	taggtgctgc	ctcccagggc	tcaaccccat	8400
attatcatgc	tagctgtgcc	aacctggccc	tgagcttcgg	ctcaacacag	ggagtagtgt	8460
aggggtgtgg	actctaggcg	tgaaccctt	atcctcacct	cttctgtcct	cttttgata	8520
ggttctgtgg	ttcttctga	gctgactcag	gacctgctg	tgtctgtggc	cttgggacag	8580
acagtcagga	tcacatgcca	aggagacagc	ctcagaagct	attatgcaag	ctggtaccag	8640
cagaagccag	ggcaggcccc	tatacttgct	atctatgata	aaaacaaccg	gccctcaggg	8700
atcccagacc	gatttttttg	ctccagctca	ggaaacacag	cttccttgac	catcactggg	8760
gctcaggcgg	aagatgaggc	tgactattac	tgtaactccc	gggacagcag	tggtcaccgt	8820
gtggttttcg	gcggaggggac	caagctgacc	gtcctagggtg	agtctcttct	cccctctcct	8880
tccccgctct	tgggacaatt	tctgctgttt	ttgtttgttt	ctgtatcttg	tctcaacttg	8940
tggtcagcct	ttctccctgc	atcccaggcc	tgagcaagga	cctctgccct	ccctgttcag	9000
acccttgctt	gectcagcag	gtcactacaa	ccacttcacc	tctgaccaca	ggggcagggg	9060
actagataga	atgacctact	gagcctcgct	tgtctgtctg	tctgtctgtc	tctctgtttg	9120
tctctctgtc	tctctgtttg	tctctctgac	tgtctgacag	gcgcaggctg	ggtctctaag	9180
ccttgcttctg	ttctggcctc	ctcagctctg	gttcttctgc	gaacagcttt	gtccttgggt	9240
tacctgggtt	ccatctcctg	gggaattggg	aacaaggggt	ctgagggagg	cacctcctgg	9300
gagactttag	aaggaccag	tgccctcggg	gctgatgctc	gggaatcaca	gagctgggac	9360
ccagagccag	gatccagacc	cagaatgagg	taggaggtgg	aggggctgcc	ctgggcgtct	9420
gggggctgcc	agggactgag	ccctgagcca	gcctgagact	caggaaaccc	cgtcaggagg	9480
gagaagggag	aagcagactc	tggacaccag	aaagccaggg	gaagggtcac	aaaaggagtg	9540
gatgtgacgg	aagggcgggc	tcttgggtct	cttcagaaca	tatccctgt	gcccaggggg	9600
atcagagggg	cagagtcac	tgctgaaag	cccactgct	atgaccaggt	agccgggacg	9660
tgggggtgat	gccagaaaag	actccacgga	ataagcagaga	gcccaggaca	gcaggcaggc	9720
tctccgatcc	ccccaggccc	ttgccccata	cacgggctcc	agaacacaca	tttggttgga	9780
acagcctgag	ggaccaaaag	gccccagtat	cccacagagc	tgaggagcca	ggccagaaaa	9840
gtaacccag	agttcgctgt	gcaggggaga	cacagagctc	tctttatctg	tcaggatggc	9900
aggaggggac	agggtcaggg	cgctgagggg	cagatgtcgg	tgttgggggg	caaggccccg	9960
agagatctca	ggacaggtgg	tcaggtgtct	aaggtaaaac	agctccccgt	gcagatcagg	10020
gcatagtggg	aaacaccctg	acccctctgc	ctggcataga	ccttcagaca	cagagccccct	10080
gaacaagggc	accccaacac	ctcatcatat	actgaggtca	ggggctcccc	agggtggacac	10140
caggactctg	acccctgccc	cctcatccac	cccgcaggct	agcccaaggc	tgccccctcg	10200
gtcactctgt	tcccgcctc	ctctgaggag	cttcaaggcca	acaaggccac	actggtgtgt	10260
ctcataagtg	acttctaccc	gggagccgtg	acagtggcct	ggaaggcaga	tagcagcccc	10320
gtcaaggcgg	gagtggagac	caccacaccc	tccaaacaaa	gcaacaacaa	gtacgcggcc	10380
agcagctatc	tgagcctgac	gcctgagcag	tggaaagccc	acagaagcta	cagctgccag	10440
gtcacgcatg	aaggggagcac	cgtggagaag	acagtggccc	ctacagaatg	ttcataggtt	10500
ctcaaccctc	acccccacc	acgggagact	agagctgcag	gatcccaggg	gaggggtctc	10560
tctctccacc	ccaaggcatc	aagcccttct	ccctgcactc	aataaacctt	caataaatat	10620
tctcattgtc	aatcagaaat	cttgttttat	ctcatttttt	cttttctcac	atataattcc	10680
tagcctttcc	tgggttctca	atttgtgggt	gaaagaaccc	tgaacccagt	gggaaagtgt	10740
cctatgtgaa	ggggttctca	gttccctggg	catctctgca	ggtaaggcct	tcctcaccca	10800
gacaccctt	cctcagctct	ccactgtacc	cctgagccac	cagcctcgcc	tggtcgggac	10860
caggggggtg	tcacactctc	ctagattctg	cctttcaaca	gaaacctaac	cacgcatcac	10920
acggcacttc	tcgcatgcct	tctgtgtctg	ctccagtctc	tgggctaaag	agttgctggg	10980
ccgggacagg	ggataggtcc	gctcttgggt	agatgccagg	tccctgccat	ggcatccctg	11040
accctatgca	acaagccagt	gactctgggt	agctctctgt	gtcaggagaa	tccatgatcc	11100
agagtttcat	attgtcctgc	aagcatctgg	tgggctgtag	ctcttgccaa	actgggaaat	11160
accatggccc	agcatcagga	tgaggagacg	tccggagagg	gaaatcagga	gaagtgaagg	11220
ggtctctggg	gagcccagat	gtgggctaga	ggcagaagta	aggggtgaaga	gcacctatga	11280
gtcaatgtca	tggtctcagc	aggaacacag	ttgaaaatcc	ccattccaca	caagaccgtt	11340
tagcaggaaa	ggagtccata	cttgtgctgc	caccaggatg	tcctgagaag	ccttgaggaa	11400
tgaaacatac	aggtgcattt	cctagacttg	acaatgcacg	ttagccaagt	aaaggcaatg	11460
aaaagtcttc	tactagggaa	ataatttctt	gtggtaaagc	ttagcttatg	taaagtcaca	11520
tttatccatc	tggcacctct	aaaagcccca	taatattctg	caagatacta	gtatgtcatg	11580
gaagtagttt	atgaaacata	aagtgagatt	taagaacaaa	gatgttacgg	gtgtatgata	11640
agatggctac	aggctcaggg	tcaggctcga	ggagtgaagg	aggccgtgtc	aaattcatga	11700
caagagttgg	agctgggcca	ggctgggtca	gggctgtgtg	aatgcagaca	gaggggtaca	11760
ggcaaggtca	ggcatccatg	aacactcagc	tccccagac	cctcctgccc	actgggacct	11820
tgcctctccc	ttggtcacag	tggtggagcc	ttcctaccca	aacctctatg	gagggccttg	11880
atgactgtgc	gttcttagtg	cccacgcaaa	cttagactcc	ctgtctctgc	ctccagcaca	11940
tcagggaatgt	ggcagctgag	ttcaccagag	ctgctgggtg	gtcccgacag	gccagggaca	12000



gagccccgcaa	agacaggaag	ctctgcagtc	acaatgaggc	agagaaatgg	ccccttggtg	12060
cttgatcaca	gccacccctg	atccaaatcc	cagcctctga	attagaagaa	ggctaaaagg	12120
ttctagtggc	cacagtcctt	gtctaagccc	atttcacaaa	tgagaaaact	aagaccaccc	12180
aaggaggggc	agttacgtag	gcctgtggtg	tacaaggcca	aggtctactt	cacaccacgc	12240
agctgtccaa	agactgagct	gtgtcataag	tttatattat	gaagaactct	gaacatataa	12300
ataaggagac	agaaaaataa	cagtgtccca	tggttctcat	accagcact	caaaataagc	12360
aattcacaga	tgatgccgac	ccacccacag	caaaataaat	tctcccttac	acaacattta	12420
gaaagaaata	caagacatca	gatctgttca	gctgtaagta	ctccattact	gtcctggaat	12480
gacatggacc	ttaaaataac	tataatatca	ctaccaaacc	taaatagaaa	ttatcactaa	12540
ttccctaata	tcgagaaata	agcagggtct	cctcaaatgc	atcagaaaca	ccagaagtgc	12600
tttggttag	ttacatgttg	gtgctgttgg	tatttggggg	tttaagttta	tatgaggagc	12660
aatatgacat	caaagtgtga	tggtgtcag	tgccatcagg	ctggttgta	ctggtgata	12720
tttctcaat	tgctctagag	cctcccggca	aggcaggagc	tgaggagct	gagagctgtc	12780
tgagaaact	cccctggctg	ctatacagcc	acgcctcctg	gagcaggaac	ctagggtctc	12840
cctcagcttt	tattttcctg	gaaaatgatt	ctagcatgaa	ggggattaac	ttgattcaga	12900
ttggacattg	caaaatagct	tgcaaggaca	gggagctgct	accagcagag	tcacccatgt	12960
cagactgcc	ctctttagt	aatgttagct	gcataggatg	gtcaatagct	acatccctca	13020
gaagggaagg	aaggcagagg	gttgaggctt	cagttcacct	ccttctcatg	agtgtgtcag	13080
agtgtctgtg	atgtcagagg	tctgcagctg	ggctctgttc	accaggaggt	gtgcttcatg	13140
ctctaggaag	gagccacttt	gcacacagaa	gatccggggc	ccagccatcc	ttccagggtg	13200
aacaattcat	gtcttctctc	atggtgaact	ctaggattca	agccatctaa	tgcttttgaa	13260
gccactgtca	ttatatataa	ttgatgatga	caggtggcca	ccaatgatga	atattttccc	13320
agggggagtc	tcccaagtg	gcttcagact	tcctcacatg	gccccagggg	attaaatggc	13380
tctgattac	tcagaggata	agagggtctg	tcttatcatg	ttcctttctt	atttgtctta	13440
tgtgtctttc	ctgccccagg	cctgggatcc	cccactgatc	tccttccct	tagtgagagg	13500
tgatatttgg	agaccacatt	ctggaggctc	cctcatgtcc	cccatttgaa	aaagacaacg	13560
gcagcctcca	ccctagctgt	cccacccaac	atgaggccag	attcaggggt	gcagggatgc	13620
tcccaagggt	accctaacag	atgtgactgg	cacttcatat	tgaggaccagc	caggcctcac	13680
tgaccaggcc	tatccaacta	gaactactcc	agaagggtggg	gctgaaaccc	accaagggtc	13740
ccagaacact	gcactctagg	gcaatcagcc	tctgcatggg	aggagaggag	caccctctgc	13800
accaccccat	ggtgttacca	aaagttagca	catgggttgg	ttcaactttg	cagagaagag	13860
accacatc	ccatctgtgg	aaattcactc	cttagcgaca	ctaataaatt	13920	
caatcctggg	cctgagtgat	ggttggtgca	aaaaacaaat	tcaagatccc	agtgtcctcc	13980
agaagcctgg	atttccaggg					14000

&lt;210&gt; 22

&lt;211&gt; 13685

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Vector pVLCL

&lt;400&gt; 22

ctagtcctgc	aggtttatcg	gcttctggag	gacactggga	tcttgaattt	gttttttgca	60
ccaaccatca	ctcaggccca	ggattgaatt	tattagaggg	cattagtgtc	gctaaggagt	120
gaattttccac	agatgggata	ggtggtctct	tctctgcaaa	gttgaaccaa	cccatggttc	180
aacttttggg	aacaccatgg	ggtggtgcac	agggtgctcc	tctcctccca	tgagagggtc	240
gattgcccta	gagtgcagtg	ttctgggaac	cttggtgggt	ttcagcccca	ccttctggag	300
tagttctagt	tggtataggc	tggtcagtg	ggcctggctg	gtcccaatat	gaagtgccag	360
tcacatctgt	tagggtaacc	ttgggagcat	ccctgcaccc	ctgaatctgg	cctcatgttg	420
ggtgggacag	ctagggtgga	ggctgccgtt	gtctttttca	aatgggggac	atgaggggagc	480
ctccagaatg	tggtctccaa	atatcacctc	tcactaaggg	aaggagagatc	agtgggggat	540
cccaggcctg	gggcaggaaa	gacacataag	acaaataaga	aaggaacatg	ataagacaga	600
acctcttatc	ctctgagtaa	tcaggagcca	tttaatcccc	tggggccatg	tgagggaagtc	660
tgaagccact	tggggagact	ccccctggga	aaatattcat	cattgggtggc	cacctgtcat	720
catcaattaa	atataatgac	agtggcttca	aaagcattag	atggcttgaa	tcctagagtt	780
caccatgaga	gaagacatga	attgttcacc	ctggaaggat	ggctggggccc	cggatcttct	840
gtgtgcaaag	tggtctcttc	ctagagcatg	aagcacactc	ctgggtgaac	agagcccagc	900
tgacagacctc	tgacatcaca	gacactctgc	agcactcatg	agaaggaggt	gaactgaagc	960

ctcaaccctc	tgccttcctt	cccttctgag	ggatgtagct	attgaccatc	ctatgcagct	1020
aacattacta	caagagtggc	agtctgacat	gggtgactct	gctggtagca	gctccctgtc	1080
cttgcaagct	attttgcaat	gtccaatctg	aatcaagtta	atcccttca	tgctagaatc	1140
attttccagg	aaaataaaag	ctgagggaag	ccctaggttc	ctgctccagg	aggcgtggct	1200
gtatagcagc	caggggaagt	tctccagaca	gctctcagct	cctgcagctc	ctgccttgcc	1260
gggaggctct	agagcaattg	aggaaatatt	caccagtgc	aaccagcctg	atggcacatg	1320
cacccatcac	catttgatgt	catattgtct	ctcatataaa	cttaaaccct	caaataccaa	1380
cagcaccaac	atgtaactaa	gccaaagcac	ttctgggtgt	tctgatgcat	ttgaggagac	1440
cctgcttatt	tctcgatatt	agggaattag	tgataatttc	tatttaggtt	tggtagtgt	1500
attatagtta	ttttaaggtc	catgtcattc	caggacagta	atggagtact	tacagctgaa	1560
cagatctgat	gtcttgtatt	tcttttctaaa	tgttgtgtaa	gggagaattt	attttgcctg	1620
gggtgggtcg	gcacatctct	tgaattgctt	attttgagt	ctgggtgatg	agaacatggg	1680
acactgttat	ttttctgtct	ccttatttat	atgttcagag	ttcttcataa	tataaactta	1740
tgacacagct	cagtctttgg	acagctgtcg	gggtgtgaagt	agaccttggc	cttgtaacca	1800
gcaggcctac	gtaactggcc	ctccttgggt	ggctttagtt	ttctcatttg	tgaaatgggc	1860
ttagacaggg	actgtggcca	ctagaacctt	ttagccttct	tctaattcag	aggctgggat	1920
ttggatcagg	gggtggctgtg	atcaagcacc	aaggggccat	ttctctgcct	cattgtgact	1980
gcagagcttc	ctgtctttgc	gggctctgtc	cctggcctgt	cgggaccacc	cagcagctct	2040
gggtgaactca	gctgccacat	tcttgatgtg	ctggaggcag	agacaggag	tctaagtttg	2100
cgtgggcact	aagaacgcac	agtcatccag	ggcctccata	gaggtttggg	taggaaggct	2160
ccaccactgt	gaccaaggga	gggcgaaggt	cccagtgggc	aggagggctc	gggggagctg	2220
agtgttcctg	gatgcctgac	cttgctgtga	gccctctgtc	tgcatccaca	cagccctgac	2280
ccagcctggc	ccagctccaa	ctcttgtcat	gaatttgaca	cggcctcctt	cactcctcga	2340
gcctgaccct	gagcctgtag	ccatcttatc	atacaccctg	aacatctttg	ttcttaaata	2400
tcactttatg	tttcataaac	tacttccatg	acatactagt	atcttgcaga	atattatggg	2460
gcttttagag	gtgccagatg	gataaatgtg	actttacata	agctaagctt	taccacagga	2520
aattatttcc	ctagtagaga	acttttcatt	gcctttactt	ggctaacgtg	cattgtcaag	2580
tctaggaaat	gcacctgtat	gtttcattct	ccaaggcttc	tcaggacatc	ctgggtggcag	2640
cacaagtatg	gactcctttc	ctgctaaacg	gtcttgtgtg	gaatggggat	tttcaactgc	2700
gttctgtctg	agaccatgac	attgactcat	agggtctctt	cacccttact	tctgcctcta	2760
gcccacatct	gggctcccca	gagacccctt	cacttctcct	gatttccctc	tccggaactg	2820
cctgcacctc	gatgctgggc	catggtattt	cccagtttgg	caagagctac	agcccaccag	2880
atgcttgcag	gacaatatga	aactctggat	catggattct	cctgacacag	agagctcacc	2940
agagtcactg	gcttgtttgca	tagggtcagg	gatgccatgg	cagggacctg	gcactctgacc	3000
aagagcggac	ctatccctcg	tcccggacca	gcaactcttt	agcccagaga	ctggagcaga	3060
cacagaaggc	atgcgagaag	tgccgtgtga	tgctgtggtta	ggttttctgtt	gaaaggcaga	3120
atctaggaga	gtgtgacacc	cccctggctc	cagccaggcg	aggctgggtg	ctcaggggta	3180
cagtggagag	ctgaggaagg	gggtgtctggg	tgaggaaggc	cttacctgca	gagatggcca	3240
gggaactgag	aaccccttca	cataggcaac	tttccactg	gggttcagggt	tctttccacc	3300
acaaattgag	aacccaggaa	aggctaggaa	ttatatgtga	gaaaagaaaa	aatgagataa	3360
aacaagattt	ctgattgaca	atgagaatat	ttattgaggg	tttattgagt	gcagggagaa	3420
gggcttgatg	ccttgggggtg	ggaggagaga	cccctcccct	gggatcctgc	agctctagtc	3480
tcccgtgggtg	gggggtgagg	gttgagaacc	tatgaacatt	ctgtaggggc	cactgtcttc	3540
tccacggtgc	tcccttcatg	cgtgacctgg	cagctgtagc	ttctgtggga	cttccactgc	3600
tcaggcgtca	ggctcagata	gctgctggcc	gcgtacttgt	tggttgccttg	tttgaggggg	3660
gtgggtggtct	ccactcccgc	cttgacgggg	ctgctatctg	ccttccaggc	cactgtcacg	3720
gctcccgggt	agaagtcact	tatgagacac	accagtgtgg	ccttgtttgg	ttgaagctcc	3780
tcagaggagg	gcgggaacag	agtgaccgag	ggggcagcct	tgggctgacc	tgcggggtgg	3840
atgaggggca	gggggtcaga	gtcctggtgt	ccacctgggg	agcccctgac	ctcagtatat	3900
gatgaggtgt	tgggggtccc	ttgttcaggg	gctctgtgtc	tgaaggctta	tgccaggcag	3960
aggggtcagg	gtgttttcca	ctatgccctg	atctgcacgg	ggagctgttt	taccttagac	4020
acctgaccac	ctgtcctgag	atctctcggg	gccttggccc	ccaacaccga	catctgaccc	4080
tcagcgccct	gaccctgtcc	cctcctgcca	tcctgacaga	taaagagagc	tctgtgtctc	4140
ccctgcacag	cgaactctgg	ggttactttt	ctggcctggc	tcctcagctc	tgtgggatac	4200
tggggccttt	tggtccctca	ggctgttcca	gccaaatgtg	tggtctggag	cccgtgtatg	4260
gggcaagggc	ctggggggat	cggagagcct	gctgtctgtc	ctgggctctc	tcttattccg	4320
tggagtcttt	tctggcatcc	accccacgtc	cgggtacctc	gggtcatagca	gtggggcttt	4380
cacgcagtgg	actctgcccc	tctgatcccc	ctgggcacag	gggatatgtt	ctgaagagac	4440
ccaggagccc	gcccttccgt	cacatccact	ccttttgtga	cccttcccct	ggctttcttg	4500
tgtccagagt	ctgcttctcc	cttctccctc	ctgacggggg	ttcctgagtc	tcaggctggc	4560

tcaggggtca	gtccctggca	gccccagac	gcccagggca	gcccctccac	ctcctacctc	4620
attctgggtc	tggatcctgg	ctctgggtcc	cagctctgtg	attcccagac	atcagccccg	4680
agggcactgg	gtccttctaa	agtctcccag	gaggtgcctc	cctcagaccc	cttgttccca	4740
attccccagg	agatggaacc	caggtaaccc	aaggacaaag	ctgttccgac	aagaacccag	4800
actgaggagg	ccagaacaga	acaaggctta	gagacccagc	ctgcgcctgt	cagacagtca	4860
gagagacaaa	cagagagaca	gagagacaaa	cagagagaca	gacagacaga	cagacagacg	4920
aggctcagta	ggctattcta	tctagtcccc	tgcccctgtg	gtcagagggtg	aagtgggtgt	4980
agtgacctgc	tgaggcaagc	aagggtctga	acagggaggg	cagagggtcct	tgctcaggcc	5040
tgggatgcag	ggagaaaggc	tgaccacaag	ttgagacaag	atacagaaac	aaacaaaaac	5100
agcagaaatt	gtcccagag	cggggaagga	gaggggagaa	gagactcacc	taggacgggtc	5160
agcttggtcc	ctccgccgaa	aaccacacgg	tgaccactgc	tgtcccggga	gttaccagtaa	5220
tagtcagcct	catcttccgg	ccgcagcggc	caagggcgaa	ttcgcggccg	ctaaattcaa	5280
ttcgccttat	agtgagtcgt	attacaattc	actggccgtc	gttttacaac	gtcgtgactg	5340
ggaaaaccct	ggcggttacc	aacttaatcg	ccttgacgca	catccccctt	tcgccagctg	5400
gcgtaatagc	gaagaggccc	gcaccgatcg	cccttcccaa	cagttgcgca	gcctatacaa	5460
acgaattcgc	ccttagtata	ccccagaact	ctgcttctga	gcccacagct	aaggaggaac	5520
ctccaggcct	ctcttatcat	aggaagggaa	gtctcttcat	gcaaattctac	ttcctttatt	5580
cttgtgtcgt	cgtaggtgg	ctctgggtgag	cagtggatgc	aaatctgttc	tccattccct	5640
aaaacatttg	tcttggttct	tgtctgagcc	ctgagcctga	tgcccttctc	tgagtaattt	5700
ctcaagatca	gaagaagggc	caagtgcatt	ttcagattta	cccactagaa	ggggccctcat	5760
aggaagcaac	agtcaggctc	ttcgcccttg	agcattacta	ggggcttggga	ctcattaggg	5820
gcctcagact	aaacctcaca	gtgcccctg	gtgcacacag	catgaatgcc	attttctgca	5880
catcactaga	tcactcagaa	gggctactta	tgagtccata	atacatgcca	gatgcattag	5940
cgagagtttt	acaagtgtta	cctcaagaag	acttttgtaa	tatagaatag	gatgatgggg	6000
agccttggtc	ttcaagccca	tctttattag	tgagtgaata	ttaggagggt	aaatgttttt	6060
cccaagtcc	ccagacaata	gggagtggag	tcaagattcc	acccaggaga	tgcacctcag	6120
agcccgacct	tccagccct	tcttgcccg	cctcctgcac	cctgctccat	ctcctccttc	6180
tccctcatcc	aagggtcttg	gggtccctct	tgtttttgct	agagctccca	caagaagata	6240
ggaaagaatt	agtgaccgaa	atggcagaaa	catattttct	cacagtctctg	aaagtggaaa	6300
acccaagata	aagggtgtag	tgggtttggt	ttccctgag	gactctctcc	ttggcttgca	6360
ggttgctacc	tccttgctga	atcctcacct	gggtctttct	ctgcacgctc	acctctggtg	6420
cctcatttct	gtgtgtgcaa	atctcttctt	cctaggagga	catcagtcca	atltgagaag	6480
aatccacct	aattttttca	ttttcactta	gtcacctctt	taaagaccct	atgcacaatt	6540
tcagtcacat	attgtgtgtt	acagcttcaa	tgcatacatt	ttgggggact	taattcagcc	6600
aataaccccc	cacctctggt	actccaaaaa	actcatgtct	ttctcacttg	taaaaaacatt	6660
caactcattc	caacagcgca	agtcctaacc	taactcagca	cctactctaa	gacccaactc	6720
tcatttagat	atcacccaaa	tcaagtgtgg	gtgattatcc	aggatgattc	atcctgaggg	6780
tttaaaggaa	aacaattttg	ggggtttctt	ctccagtctc	ctgttatcat	ccagggtcca	6840
gaaaagtaaa	ctcctacttc	aataagattg	aaataaaaaa	gtgagtcaac	atcagcaaca	6900
tttttgagtc	agatgtgaaa	aattcacatc	gtgacacttt	taaaataatt	tagagtatat	6960
aataatttaa	atgccataaa	attgaatttt	gtgatcagta	gccatgggct	atctctgaca	7020
gcatttgga	aagagctata	gttgatacag	aaaatataac	ccaaaaaaca	agagttgttt	7080
ttagagcaga	atattttcaa	gttaactaag	ataaatcgta	cacagaaata	atataatcca	7140
aagaaaatta	atltcttgta	ggcatattaa	attactaaat	ccaatttttag	cattgagcat	7200
caacattttg	gtatgcata	aaagccacct	ctcaatgggt	atataaaagg	gcagttgttt	7260
cctacttcat	gttacagttt	atltgtggct	taatgggtgct	ttgatagtca	gagagaaggt	7320
gctccagaag	atgcttcctt	tacctaaaag	aggggaaata	ttcttttaca	taaaacgata	7380
atltgcagga	taacataatt	ccactctcat	cacccctggt	cttgtcatgg	caacttagtt	7440
ggaggactta	cagttaaaat	ctcaaactca	gccaggcagc	gtagttcatg	cctgtaatcc	7500
cagcactttg	ggaggccgag	acgggtggat	catgaggtca	ggagattgac	accatcctgg	7560
tcaacattgt	gaaaccatgt	ctctacaaaa	aatacaaaaa	ttagcctggc	atgatggcga	7620
gagcttgtaa	tcccagctac	ttgggaggct	gaggcaggag	aatttcttga	acccgggagg	7680
tggatgttgc	agtgagccgc	gattgtgcca	ctgcactcca	gcctggcaac	agagtgagac	7740
tccatctcaa	aaataaataa	ataaataaat	aaattttaaa	aacatctcaa	actctcttct	7800
ttattccatt	gttgcatctt	gagtttaacg	atctacttgc	tttataaaaa	tttgcaatac	7860
atttaaaagt	tcaacttcat	ttatcatttg	ttaatgatgc	tcagaacacc	aaccatcttg	7920
tgtgtttttg	gtttcagcta	caaggctgat	tttaagacct	ttttctctc	agcctacact	7980
ggactactcc	cgacttggtg	caagcttctt	tgcccathtt	ccccctctc	tgccctctaat	8040
ttttcacctc	ggagggaatct	ctattctctga	tatactgaag	ctctcacaaa	acagagcaaa	8100
tggatgaaga	tgaaagtcat	gagcttgtga	cacagggctg	tcttgagcag	acacaagatc	8160
caatcaaaaca	catggtacag	gtaggttctt	atccaaagaa	agacctcagg	cccctagagg	8220

aggatgaatta	cagtgtccct	cacaaagaga	tctccacata	gaacatatgc	gggtgcaatg	8280
ttcaaacttc	aaataaccct	agaaaccaga	gaccgttaaa	ccacatcctg	tgggacatcc	8340
ctggcctgcc	accaattttt	ttaatggccc	cagaactgat	agtgggtttt	atatgtttta	8400
atgattacgt	tgtagatggg	gtatcagaac	atacatatta	tcccaacggt	gtcttgtgca	8460
tggcaaagac	taaaatacct	cttaccgagg	cattgaagaa	acggttttacc	aaatcctaaa	8520
acataatgag	cactgaaata	tttgagtaaa	tgctcaacct	caagcaaaat	aggagaaatc	8580
aaaaataaat	gtgtaacaag	ataactttgt	atatctgata	ggttggcaca	aacttgcact	8640
ttcaccaatg	aattccaatc	aatatattag	gctgggtatt	taaactggta	gaactggagg	8700
ggaatatgaa	aacaatggat	aaaagttaaa	aatgcacatc	cttttgaccc	agcaattcca	8760
cttctggaag	tttatcctat	gggtgatatg	acacatgaac	tcaaaggagt	ctgcacaggg	8820
atgcttgctg	cagtgtgatt	tgtaagatca	aaatcatggg	gataaccatt	agaggctgca	8880
tggctaaaat	cctactacag	aatactctac	agcgttagaa	tgaatgggca	gtgctctatg	8940
cctatgacgc	cccaggaaag	aataagaaat	gggtgcaggta	tgggatggcc	tttgacaagg	9000
gggactggga	cagggtccct	acacttcact	ctctcctttt	cctctgagat	tttccacatc	9060
agacaaacag	gttagggaca	gtggaagccc	ctcaggctgg	gcctggccac	ctgctctggc	9120
ctctgaatgc	agcctggcct	gacagcttgg	ctgcaacttc	atgaccaacc	cagaaccaga	9180
accacaaaac	taagctgctc	tcaattccag	atgcaccgaa	gtgacaagat	cacaaacacg	9240
tggtctctta	ccatgctaaa	tattagggag	caatttttat	gcaacaatag	acaataaata	9300
caatttggtt	tttgaaatat	attttcttgt	ggatatttca	ggtacacaac	atgttgatat	9360
agtctaaaca	cataataaaa	tggttacttt	gttttttaata	aaacctattt	aatcaaagtt	9420
tatgaagcct	aaattatata	taataatggc	tatgtctacc	aattgactca	taaaatttaa	9480
atattggatg	caactaatgt	ctgaatatatt	attaaattca	ttctcacctt	tagtagatta	9540
agaaaagatt	cagctacaaa	agtattgaca	cccatggaaa	ttacaaatgc	tggatgtcaa	9600
tgaggaagaa	ggaatggact	cacgttaact	cttccttgtg	gggccatttt	ggaaactccc	9660
aacctatagg	gacaccatcc	actttttgggg	agtttccagg	acagggcccc	agcgaattga	9720
gacgggagga	ttttgagggg	gcactgagcc	tgtcacgcaa	aagggcgaat	tcgcggccgc	9780
taaattcaat	tcgccctata	gtgagtcgta	ttacaattca	ctggccgctg	ttttacaacg	9840
tcgtgactgg	gaaaaccctg	gcgttaccca	acttaatcgc	cttgcagcac	atcccccttt	9900
cgccagctgg	cgtaatagcg	aagaggcccc	caccgatcgc	ccttcccaac	agttgcgcag	9960
cctataccta	cggcagttta	aggtttacac	ctataaaaga	gagagccggt	atcgtctgtt	10020
tgtggatgta	cgagtgtata	ttattgacac	gccggggcga	cggatgggtg	tccccctggc	10080
cagtgcacgt	ctgtgtcag	ataaagtctc	ccgtgaactt	taccgggtgg	tgcatatcgg	10140
ggatgaaagc	tggcgcatga	tgaccaccga	tatggccagt	gtgccggtct	ccgttatcgg	10200
ggaagaagtg	gctgatctca	gccaccgcga	aaatgacatc	aaaaacgcca	ttaacctgat	10260
gttctgggga	atataaatgt	caggcatgag	attatcaaaa	aggatcttca	cctagatcct	10320
tttcacgtag	aaagccagtc	cgcagaaaacg	gtgctgaccc	cggatgaatg	tcagctactg	10380
ggctatctgg	acaagggaaa	acgcaagcgc	aaagagaaa	caggtagctt	gcagtgggct	10440
tacatggcga	tagctagact	gggcggtttt	atggacagca	agcgaaccgg	aattgccagc	10500
tggggcgccc	tctggttaagg	ttgggaagcc	ctgcaaaagta	aactggatgg	ctttctcgcc	10560
gccaaagatc	tgatggcgca	ggggatcaag	ctctgatcaa	gagacaggat	gaggatcggt	10620
tcgcgatgatt	gaacaagatg	gattgcacgc	aggttctccg	gccgcttggg	tggagaggct	10680
attcggctat	gactgggcac	aacagacaaat	cggctgctct	gatgccgcgc	tggtccggct	10740
gtcagcgcag	gggcgcccgg	ttctttttgt	caagaccgac	ctgtccgggtg	ccctgaatga	10800
actgcaagac	gaggcagcgc	ggctatcgtg	gctggccacg	acgggcggtc	cttgccgcagc	10860
tgtgctcgac	gttgctcactg	aagcgggaag	ggactggctg	ctattgggcg	aagtgccggg	10920
gcaggatctc	ctgtcatctc	accttgctcc	tgccgagaaa	gtatccatca	tggctgatgc	10980
aatgcggcgg	ctgcatacgc	ttgatccggc	tacctgccc	ttcgaccacc	aagcgaacaa	11040
tcgcacgcag	cgagcacgta	ctcggatgga	agccggtctt	gtcgatcagg	atgatctgga	11100
cgaagagcat	caggggctcg	cgccagccga	actgttcgcc	aggctcaagg	cgagcatgcc	11160
cgacggcgag	gatctcgtcg	tgacccatgg	cgatgpcctg	ttgccgaata	tcaggttgga	11220
aaatggccgc	ttttctggat	tcacgcactg	tggccggctg	gggtgtggcg	accgctatca	11280
ggacatagcg	ttggctaccc	gtgatattgc	tgaagagctt	ggcggcgaat	gggctgaccg	11340
cttcctcgtg	ctttacggta	tcgccgctcc	cgattcgcag	cgcatcgcc	tctatcgcc	11400
tcttgacgag	ttcttctgaa	ttattaacgc	ttacaatttc	ctgatgcggt	attttctcct	11460
tacgcacctg	tgccgtattt	cacaccgcat	acaggtggca	cttttcgggg	aaatgtgcgc	11520
ggaaccctta	tttgtttatt	tttctaaata	cattcaaata	tgtatccgct	catgacacaa	11580
taacctgatg	aaatgcttca	ataatattga	aaaaggaaaga	gtatgagtat	tcaacatttc	11640
cgtgtgcgcc	ttattccctt	ttttgcggca	ttttgccttc	ctgtttttgc	tcaccagaaa	11700
acgctgggtg	aagtaaaaaga	tgctgaagat	cagttgggtg	cacgagtggt	ttacatcgaa	11760
ctggatctca	acagcggtaa	gatccttgag	agttttcgcc	ccgaagaacg	ttttccaatg	11820

atgagcactt	ttaaagttct	gctatgtggc	gcggtattat	cccgtattga	cgccgggcaa	11880
gagcaactcg	gtcgccgcat	acactattct	cagaatgact	tggttgagta	ctcaccagtc	11940
acagaaaagc	atcttacgga	tggcatgaca	gtaagagaat	tatgcagtgc	tgccataacc	12000
atgagtgata	acactgcggc	caacttactt	ctgacaacga	tcggaggacc	gaaggagcta	12060
accgcttttt	tgcacaacat	gggggatcat	gtaactcgcc	ttgatcgttg	ggaaccggag	12120
ctgaatgaag	ccataccaaa	cgacgagcgt	gacaccacga	tgccctgtagc	aatggcaaca	12180
acgttgcgca	aactattaac	tggcgaacta	cttactctag	cttcccggca	acaattaata	12240
gactggatgg	aggcggataa	agttgcagga	ccacttctgc	gctcgggcct	tccggctggc	12300
tggtttattg	ctgataaatc	tggagccggg	gagcgtgggt	ctcgcggtat	cattgcagca	12360
ctggggccag	atggtaagcc	ctcccgtatc	gtagttatct	acacgacggg	gagtcaggca	12420
actatggatg	aacgaaatag	acagatcgct	gagataggtg	cctcactgat	taagcattgg	12480
taactgtcag	accaagttta	ctcatatata	ctttagattg	atttaaaact	tcatttttta	12540
tttaaaagga	tctaggtgaa	gatccttttt	gataatctca	tgacaaaaat	cccttaacgt	12600
gagttttcgt	tccactgagc	gtcagacccc	gtagaaaaga	tcaaaggatc	ttcttgagat	12660
cctttttttc	tgcgcgtaat	ctgctgcttg	caaacaaaaa	aaccaccgct	accagcgggtg	12720
gtttgtttgc	cggatcaaga	gctaccaact	ctttttccga	aggtaactgg	cttcagcaga	12780
gcgagatac	caaatactgt	ccttctagtg	tagccgtagt	taggccacca	cttcaagaac	12840
tctgtagcac	cgccctacata	cctcgctctg	ctaatectgt	taccagtggc	tgctgccagt	12900
ggcgataagt	cgtgtcttac	cgggttggac	tcaagacgat	agttaccgga	taaggcgag	12960
cggtcggggt	gaacgggggg	ttcgtgcaca	cagcccagct	tggagcgaac	gacctacacc	13020
gaactgagat	acctacagcg	tgagctatga	gaaagcgcca	cgcttcccga	agggagaaaag	13080
gcgacaggt	atccggtgaa	cggcaggggc	ggaacaggag	agcgacagag	ggagcttcca	13140
gggggaaacg	cctgggtatct	ttatagtcct	gtcgggtttc	gccacctctg	acttgagcgt	13200
cgatttttgt	gatgctcgtc	agggggggcg	agcctatgga	aaaacgccag	caacgcggcc	13260
tttttacggg	tcctgggctt	ttgctggcct	tttgctcaca	tgttctttcc	tgcgttatcc	13320
cctgattctg	tggataaacc	tattaccgcc	tttgagtggg	ctgataccgc	tcgccgcagc	13380
cgaacgaccg	agcgagcgga	gtcagtgagc	gaggaagcgg	aagagcgccc	aatacgcaaa	13440
ccgcctctcc	ccgcgcggtg	gccgattcat	taatgcagct	ggcacgacag	gtttcccgcg	13500
tggaaagcgg	gcagtgagcg	caacgcaatt	aatgtgagtt	agctcactca	ttaggcacc	13560
caggctttac	actttatgct	tccggctcgt	atgttgtgtg	gaattgtgag	cggataacaa	13620
tttcacacag	gaaacagcta	tgacctgat	tacgccaagc	tcagaattaa	ccctcactaa	13680
aggga						13685